

## CLAIMS

What is claimed is:

1. A method for an access point to provide superior quality of service to a plurality  
10 of associated stations by automatically optimizing delivery of a plurality of multicast data  
streams over a network, the steps comprising:

observing, at an access point, a registration message that originated from at least one  
associated station;

determining, from the registration message, a multicast data stream to which this  
15 associated station subscribes;

tracking the multicast data stream for which all associated stations subscribing to the  
stream support low packet-delivery latency; and

transmitting the multicast data stream immediately to all associated low-latency stations.

20 2. The method of claim 1 wherein the access point is an 802.11 access point.

3. The method of claim 1 wherein the registration is accomplished using Internet  
Group Multicast Protocol.

25 4. The method of claim 1 wherein each low-latency associated station is in 802.11  
active operation.

5. The method of claim 1, further comprising the step of comparing the multicast  
data stream for which all associated stations subscribing to the stream support low packet-  
30 delivery latency with a multicast data stream for which at least one associated station subscribing  
to the stream supports only high packet-delivery latency.

6. The method of claim 5, wherein each high-latency associated station is in 802.11  
power-save protocol operation.

7. The method of claim 6, further comprising the step of buffering the multicast data stream for which the at least one associated station is in power-save protocol operation.

8. The method of claim 1, wherein the multicast data stream is transmitted to a plurality of stations operating on the same virtual local area network.

9. The method of claim 1, wherein the multicast data stream is transmitted to a plurality of stations operating on a plurality of virtual local area networks.

10. The method of claim 1, wherein the immediately transmitting step is applied at the Internet Protocol level.

11. The method of claim 1, wherein the associated station is a portable personal computer.

12. The method of claim 1, wherein the associated station is a personal data assistant.

13. In a network comprising at least one access point, a plurality of associated stations and a plurality of multicast data streams, a system for enhancing quality of service to the plurality of associated stations by automatically optimizing delivery of the multicast data streams over the network, comprising:

means adapted for observing, at an access point, a registration message that originated from at least one associated station;

means adapted for determining a multicast data stream to which this associated station subscribes;

means adapted for tracking the multicast data stream for which all associated stations subscribing to the stream support low packet-delivery latency; and

means adapted for transmitting the multicast data stream immediately to all the associated low-latency stations.

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14. The system of claim 13 wherein the access point is an 802.11 access point.

15. The system of claim 13 wherein the registration is accomplished using Internet Group Multicast Protocol.

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16. The system of claim 13 wherein each low-latency associated station is in 802.11 active operation.

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17. The system of claim 13, the further comprising means adapted for comparing the multicast data stream for which all associated stations subscribing to the stream support low packet-delivery latency with a multicast data stream for which at least one associated station subscribing to the stream supports only high packet-delivery latency.

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18. The system of claim 17, wherein each high-latency associated station is in 802.11 power-save protocol operation.

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19. The system of claim 18, the further comprising means adapted for buffering a multicast data stream for which at least one associated station subscribing to the stream supports only high packet-delivery latency.

20. The system of claim 13, wherein the multicast data stream is transmitted to a plurality of stations operating on the same virtual local area network.

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21. The system of claim 13, wherein the multicast data stream is transmitted to a plurality of stations operating on a plurality of virtual local area networks.

22. The system of claim 13, wherein the means adapted for immediately transmitting is applied at the Internet Protocol level.

5           23.     The system of claim 13, wherein the associated station is a portable personal computer.

          24.     The system of claim 13, wherein the associated station is a personal data assistant.

10           25.     A computer program product having a computer readable medium having computer program logic recorded thereon for performing a method for an access point to provide superior quality of service to a plurality of associated stations by automatically optimizing delivery of a plurality of multicast data streams over a network, the steps comprising:

          observing, at an access point, a registration message that originated from at least one  
15 associated station;

          determining a multicast data stream to which the this associated station subscribes;  
          tracking the multicast data stream for which all associated stations subscribing to the  
stream support low packet-delivery latency; and

          transmitting the multicast data stream immediately to all associated low-latency stations.

20           26.     The method of claim 25 wherein the access point is an 802.11 access point.

          27.     The method of claim 25 wherein the registration is accomplished using Internet  
Group Multicast Protocol.

25           28.     The system of claim 25 wherein each low-latency associated station is in 802.11 active operation.

30           29.     The method of claim 25, the steps further comprising comparing the multicast data stream for which all associated stations subscribing to the stream support low packet-delivery latency with a multicast data stream for which at least one associated station subscribing to the stream supports only high packet-delivery latency.

5           30.     The method of claim 29, wherein each high-latency associated station is in 802.11 power-save protocol operation.

          31.     The system of claim 30, the further comprising means adapted for buffering a multicast data stream for which at least one associated station subscribing to the stream supports  
10   only high packet-delivery latency.

          32.     The method of claim 25, wherein the multicast data stream is transmitted to a plurality of stations operating on the same virtual local area network.

15           33.     The method of claim 25, wherein the multicast data stream is transmitted to a plurality of stations operating on a plurality of virtual local area networks.

          34.     The method of claim 25, wherein the immediately transmitting step is applied at the Internet Protocol level.

20           35.     The method of claim 25, wherein the associated station is a portable personal computer.

          36.     The method of claim 25, wherein the associated station is a personal data  
25   assistant.

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